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ABSTRACT

This report identifies strategies and practices that school districts might employ as they seek ways to cope with increased enrollments and rapidly rising costs. Among the practices discussed are (1) intensive space utilization, (2) community classrooms, (3) "Schomes" -- schools in homes or apartment buildings, (4) rented classroom space, (5) extended school day, (6) double sessions, (7) busing, (8) rotated or staggered four-quarter plan, (9) 45-15 plan, and (10) extended school year acceleration programs. A bibliography is also provided. (JF)

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STRATEGIES EMPLOYED in COPING WITH BURGEONING ENROLLMENTS

1969-70

EA 004 100

COLLEGE OF EDUCATION
UNIVERSITY OF MINNESOTA
MINNEAPOLIS, MINNESOTA
55455

STRATEGIES EMPLOYED
in
COPING WITH BURGEONING ENROLLMENTS

by
Donald R. Prescott

April, 1970

EDUCATIONAL RESEARCH AND DEVELOPMENT COUNCIL
OF THE TWIN CITIES METROPOLITAN AREA, INC.
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May 1, 1970

LETTER OF TRANSMITTAL

Dear Council Member:

School districts in the Twin Cities Metropolitan Area, as in other areas, are faced with the problem of rapidly rising school costs. This circumstance, together with resistance to increased tax levies, is causing school districts to seek alternatives to existing practices which might retard the rate of current cost escalations.

Since a significant part of most school budgets is the amount required for the construction of school facilities, the identification of acceptable strategies which might offer alternatives to the usual practice of constructing additional facilities would be welcomed. The report which follows attempts to identify and describe such strategies.

Special appreciation is extended to Donald Prescott, the principal researcher and writer for the project.

Sincerely yours,

Thomas F. Stark

Thomas F. Stark
Executive Secretary

PREFACE

"Tomorrow's school will be a school without walls - a school built of doors which open to the entire community.

Tomorrow's school will reach out to the places that enrich the human spirit - to the museums, the theatres, the art galleries, to the parks and rivers and mountains.

It will ally itself with the city, its busy streets and factories, its assembly lines and laboratories - so that the work does not seem an alien place for the student.

Tomorrow's school will be the center of community life, for grown-ups as well as children - "a shopping center of human services". It might have a community health clinic or a public library, a theatre and recreation facilities.

It will provide formal education for all citizens - and it will not close its doors any more at three o'clock. It will employ its buildings round the clock and its teachers round the year" (3).

Lyndon Baines Johnson
From an address delivered at the
annual convention of the American
Association of School Administrators,
February 16, 1966

STRATEGIES EMPLOYED IN COPING WITH BURGEONING ENROLLMENTS - A REVIEW OF THE LITERATURE

Introduction

"Inflation is roaring through education's fiscal forest like a fire blazing out of control. Dollars spent for books, buildings, salaries and services are going up in smoke." During the last two years school districts have needed to spend tremendous amounts in attempts just to maintain the status quo. The biggest jump in history for per pupil expenditures occurred last year as spending rose 13 percent over 1968-69 (39).

Annual expenditures in the United States for public elementary and secondary schools have grown from 10.6 billion to 26.2 billion dollars - an increase of 68 percent within ten years. While enrollments during the same period rose 35.8 percent, the annual expenditures per pupil were up 91 percent. Salaries alone rose 60 percent. Other increases were 47 percent for plant maintenance, 87 percent for fixed charges, 54 percent for interest charges, and 41 percent for capital outlay (9). Clearly, many school districts are faced with a dilemma as costs continue to soar.

Many urban districts are experiencing rapid enrollment increases along with rising school costs. The enrollment in Jefferson County, Kentucky, for example, climbed from 16,000 in 1950 to 86,000 in 1968 - about a 438 percent increase (82). According to Superintendent Erling Johnson at Anoka, the secondary enrollment in that district will double within the next six years.

"With school district tax rates hitting their ceilings and taxpayers hitting the roof" (39), school districts are forced to scrutinize budgets and alternatives for holding costs in line. For one reason, "In the

first six months of 1969 - fewer than one half the school-bond issues presented to the voters across the nation were approved, compared with an average of more than 70 percent in the past" (33).

A report recently issued by the ERDC, entitled Municipal Overburden, revealed "wide variations among the municipalities in Minnesota in the proportion of real and personal property taxes that are levied for school and non-school uses" (31). It appears that some communities are less able to handle burgeoning enrollments than others on the basis of "fiscal disparity".

Clearly, there is a need for complete utilization of existing school facilities. In the words of Secretary Fleming: "We can no longer afford the luxury of having our buildings stand idle from June to September" (19). But whether or not school districts contemplate this approach to utilization, i.e., summer use of facilities, it becomes imperative to explore all avenues leading to better utilization of facilities and reduction of the need for construction of new buildings. This report, thus, identifies strategies and practices which school districts might employ as they seek ways to cope with increased enrollments.

INTENSIVE UTILIZATION OF SPACE

Depending upon a community's educational aspirations, needs, ability to provide financial support for education, and severity of enrollment problems, it may be a good alternative to intensively utilize existing space in buildings - space presently being used for learning and space usually not allocated for instructional purposes. Studies conducted in many schools have indicated that by "tightening the belt" enough space can be found to handle increased enrollments (54). Administrators have found the following measures helpful in assessing utilization of present facilities: use of building space, enrollment per room available, room period measure, and pupil station measure (84).

The increase of class size alone may provide better utilization of space in many cases. If building capacity drops 40 percent and costs mount 67 percent when class size is reduced from 40 to 24 (19), it should also hold relatively true in reverse. That is, as the size of classes is increased, the building capacity would rise and costs per pupil decrease accordingly. "Unless the community leaders themselves believe that 35-40 or more children per classroom represents a bad and undesirable situation... overcrowding has no real meaning" (7).

On the other hand, if increasing class size is considered undesirable by the community, the aforementioned space utilization studies may reveal areas of school property that could be used for classrooms. For example, one school district having enrollment problems explored the potential of their old building and ended up with five extra classrooms, which increased their capacity by approximately 125 pupils per period. In this case, a supply room, storage room, coal bin and custodial room were scrubbed, painted, and converted into acceptable classrooms (38). Some

districts may not appreciate this course of action, however, but should at least consider possibilities. Portable storage facilities are less expensive than classroom facilities and easier to construct. Corridors, storage rooms, custodial rooms, book rooms, lobbies, and office space should all be considered as possible classrooms in emergency situations.

The idea of "dual use of space" has gained increasing popularity and has helped reduce school costs, especially in Great Britain (30). Sliding partitions aid in incorporating corridors into classrooms, entrance halls into dining areas, and large rooms into several small rooms. Movable partitions also help convert stages, auditoriums, lunch rooms, and basement areas into usable classroom space as needed during the day. Albuquerque, New Mexico, has even made use of doubling up two classes in one classroom when circumstances justified this form of "dual use of space" (24).

The defeat of a bond issue in Edina, Minnesota, along with an expected increase in enrollment of nearly 300 students, has forced the Edina School District to adopt a "temporary solution to the overcrowded conditions that presently exist in the Senior High School building and which will become more acute until permanently corrected by the construction of an additional facility." The recommended temporary solution, as outlined in Edina Board Report 206, Volume 41, pages 575-76, consists of the following:

1. Change approximately 2/3 of the seats in the auditorium to folding tablet arm seats and increase the lighting level to enable this facility to handle the majority of the study hall load. Such changes will enable the auditorium to be used permanently as a large group instruction space when additional facilities become available. Also included in this work will be the replacement of the existing stage lighting panel which is worn out and presents an accident hazard.

2. Convert one present study hall into two classrooms. Use the other study hall and the corridor space outside the

library as an expanded library facility with independent study potential. Carrels and other furniture and equipment must be provided to fully utilize this space.

3. Erect a metal building of approximately 50 feet by 100 feet dimension. This building to be used as a continuous progress - team teaching facility for the French apartment. This will relieve four classrooms within the present building and provide valuable data on the use of open space for instruction.

4. Erect a second metal building similar in size to the one described above to be used as an additional physical education teaching station and wrestling facility.

5. Upgrade the existing activity rooms under the girl's gymnasium for use as classrooms.

These recommendations add the following number of teaching stations to the Senior High School building:

Study Halls	2
French Rooms	4
Activity Rooms	3
Phy. Ed. Station	1
	10

In addition this recommendation improves the library service by utilizing additional space and providing for independent study. It also provides a more adequate wrestling facility and relieves a very overcrowded physical education facility.

To be sure, there are limits as to how many people could or should make use of any given school building, but frequently all possibilities for better use of existing buildings are not considered, especially when funds are plentiful for continuous expansion of the building program.

COMMUNITY CLASSROOMS

"Classrooms are born anywhere that the desire to teach or to learn is strong enough to make one thrill to the challenge of inconvenience or hardship" (4).

This statement becomes a challenge to educators and parents to explore possibilities for unusual educational opportunities which may have gone unnoticed previously. Many creative learning situations are being utilized across the nation. In Cleveland an old paper company freight elevator offers unique learning space. Students in Washington, D. C. have floating classrooms on an old World War II ship. An old mansion has been converted into classrooms in Dunkirk, New York. Rochester, New York, has developed a learning center and satellite school in a department store. Another store building has been turned into a supplementary education center in Newark, New Jersey. Rockford, Illinois, has renovated a dairy barn for classroom use - much to the enjoyment of younger pupils. In Cincinnati, Ohio, an old train terminal is now serving as an educational science center. Connecticut schools are utilizing mobile units, "classrooms on wheels", especially for science facilities (4).

There is really no end to the possibilities for educational facilities - once the total community in involved. Floyd Dell, in his book Were You Ever A Child?, visualized students studying in public libraries, museums, bakeries, police and fire stations, rather than in school buildings. Perhaps a citizens' council could help identify locations in the community suitable for educational purposes.

The main advantage to this approach to education is that of increased community involvement in education, and a big disadvantage is that of increased communication and accountability problems for the school. Cost

factors would vary according to specific situations.

The Parkway Experiment

An innovative and economical high school program is being tried in Philadelphia. Initiated as an attempt to ease the overcrowding problem, the Parkway Program saved the city of Philadelphia $1,000,000- the approximate cost of building a new school to house 500 students. Rather than building classrooms, the program turned to community facilities. Approximately 250 courses are offered to these 500 students (chosen from 10,000 applicants), but all are held on location: museums, libraries, stores, shops, and offices. This program breaks down the idea that students must be taught in classrooms. A similar program is now under way in Chicago and may soon be started in Kansas City, San Francisco, Hartford, and Washington (77).

Research is not available which would indicate gains or losses in student achievement under this type of flexible learning situation. Parkway's administrators suggest that students who enroll in this program learn more and mature faster. The plan certainly appears to save the district money; not only does it reduce the need for building and maintaining a high school, but professionals are volunteering services, which lowers instructional costs. The main disadvantage seems to be lessening of control over students who are dispersed throughout the city, although Parkway has had few discipline problems.

Metro School

The Chicago Public High School for Metropolitan Studies (Metro School) opened February 2, 1970, with 150 students selected by lottery from 1,000 applications. A progress report recently issued by A. Donn Kesselheim, Director, Education Division of Urban Research Corporation, recommended that the program expand to a total of 500 students by September. It is

envisioned that the enrollment will reach 1,500 to 2,000 students within the next four years.

The Metro School is a "school without walls" patterned after Philadelphia's Parkway High. Like the Philadelphia Parkway School, the Chicago Metro High School intends to offer students more and better instruction at a lower per-pupil cost. Both Chicago and Philadelphia planners contend that the "high school without walls" concept should not be considered as a replacement for the traditional school, but rather as another alternative.

Metro's educational program is implemented throughout the city of Chicago. Operating from a central location on the fifteenth floor of an office building, the school's activities are initially focussed in the Loop area, but classes will also meet in neighborhood community facilities as the program expands. Instead of having one large building to house the school's activities, Metro uses the city - its industry, businesses, agencies, cultural centers - for its classrooms, thus realizing significant savings in capital outlay and maintenance.

In recommending an expansion of the Metro School, A. D. Kesselheim stated:

> We are convinced, based on Metro's experience to date, that the Metro model is not only bold and exciting, but also that it is practical and will work in Chicago. The program is new and has a number of problems characteristic of new programs. However, it seems clear that the Metro program has already demonstrated that:
>
> 1. Chicago business, as well as Chicago cultural and community organizations, are willing to provide staff time, money, equipment, and space to support a new approach to urban education.
>
> 2. Involving students in making important decisions about what they will study and about the structure of their educational community helps create a

highly positive atmosphere for learning in which student alienation is overcome and discipline problems are virtually non-existent.

3. While locating classes around the city creates complex logistics problems, these problems can be solved.

4. A diverse student body that is representative of the city's young people can work harmoniously within the context of the Metro program to make their diverse backgrounds and talents a positive resource for learning.

Metro School administrators emphasize that Metro is <u>not</u> a work study program, a job training program, a school for gifted kids, a school for potential drop-outs, or a school for "underprivileged" children. Instead, they say that Metro is a new public high school for everyone, a new approach to education for everyone, and a way of improving the urban environment for everyone. To be successful, Metro needs the support of business organizations, cultural organizations, and community organizations, as well as creative and committed people.

"SCHOMES"

"To declare that because there are children to be educated we automatically need a schoolhouse is fallacious. What we need is space" (43). The Garrison Law now allows schools in New York City to make arrangements with private agencies so that buildings can be erected that will provide space for both classrooms and apartments or light industry.

Rather than using warehouses, garages, and barracks for classrooms as in the 40's, some school districts are experimenting with school-homes or "schomes" (21). This approach tends to solve a double problem: housing and schooling. For example, the Forest Boulevard School (Park Forest, Illinois) utilizes 8-family apartment buildings loaned by a developer to house pupils in homelike (walls and closets left out when possible) surroundings. Primary grade children seem to benefit the most from the homelike atmosphere. Individual ranch-type houses were also constructed to be used as classrooms as long as needed and then sold for private homes. In Hempstead, New York, a "Living Room School" is operated which can be readily converted to living space as needed with the help of flexible and convertible furniture. El Paso, Texas, is also using "Home-style" units to aid with their classroom shortage problem .

Closer to home, the Edina Public School System found this alternative feasible. A fact sheet issued in 1967 stated:

> After considerable research and discussion this solution to the districts' 1967-68 classroom shortage was determined to be the most economical. The rambler type residences were designed to be compatible with homes in the immediate area. Initially, most interior walls have been omitted, leaving large classroom spaces. When the buildings are no longer needed as classrooms, the interior partitions will be installed and the homes offered for sale. It is expected that the entire cost of the units will be recovered.

A tendency for school districts to acquire large homes and estates

through gifts, loans, or bargain purchases has been noted. Moline, Illinois, for example, uses large homes for administrative offices, releasing space for classrooms. Willoughby-Eastlake School District (Ohio) recently acquired an estate consisting of 150 acres, 4 barns, and a 20-room mansion, which has tremendous potential for school use (7).

Advantages of "home" properties being used for classrooms include economy, less-institutionalized atmosphere for younger children, and expanded cooperation with private citizens and developers. Problems may arise with contracts, insurance, transportation, and communication.

RENTING CLASSROOM SPACE

An alternative to constructing new facilities, employed in many districts in Minnesota already, is that of renting classroom space in suitable quarters. According to records at the State Department of Education, approximately 75 school districts are using this method of obtaining additional space for their educational programs at this time.

By far the majority of rented classroom space is obtained in local churches. In many cases the extra classrooms are used for kindergarten instruction, but many are also used for elementary, as well as secondary, education programs. In some cases the rental charges are very low, but in many others the charges are very high in comparison, although many factors should be considered in comparing charges.

Church schools were also found to be rented for public school classes in some instances. For example, the public school districts at Cold Springs, Jackson, Little Falls, and Wabasha were among those districts able to rent parochial schools to house their students. Rental charges varied according to location and desirability of facilities.

A National Guard Armory has been found suitable for classroom instruction in Pipestone. St. James, Grand Rapids and Princeton have also utilized National Guard facilities, to mention just a few school districts which could be contacted for information about such rentals.

Many other rental arrangements were approved by the State Department of Education. The ground floor of a private building was rented in Canby. Office space was rented from a private realty firm in Edina. American Legion and Veterans of Foreign War facilities were rented in Mountain Lake and Prior Lake, respectively. In addition, a children's home in Fergus Falls, a village hall in Murdock, and a community center and privately owned

building in St. Paul were all approved as suitable quarters for school purposes. The possibilities seem limited only by the space resources of the community.

Officials at the State Department of Education, however, stress the fact that quarters to be rented must be suitable for educational programs. In other words, rented facilities must meet all state requirements in order for rental arrangements to be approved. For example, factors such as size, exits, washrooms, lighting, and fire proofing are considered in processing rental agreements.

Obviously, this alternative to building new facilities is now used quite frequently to handle overcrowding in existing facilities. Non-school owned space appropriate for classroom instruction appears readily available in most Minnesota communities. A problem might be encountered in renewing rental agreements repeatedly, however, if the State Department were to decide that a given district could build additional facilities and was not attempting to do so. Since rental agreements appear to be judged on an individual basis at the State Department, the needs and problems of a specific district in handling enrollment would have to be clearly indicated.

RELOCATABLES

Superintendent Ralph C. Dailerd of the San Diego City Schools has recommended portable school buildings as "one successful answer" to burgeoning enrollment problems (6). Their flexibility in meeting the needs of a shifting school population has been praised. Oakland, California is one city which moves its portables as the population shifts and has about 860 of these units. Oelwein, Iowa leased 47 portable or relocatable school units to restore operations after a disastrous tornado swept through the city destroying much school property. Original designs for portable classrooms have saved the city of Los Angeles about $2,000 per unit. Twenty percent of the classrooms in Los Angeles are of this type (61). Federal funds have provided relocatable classrooms for Jersey City, New Jersey (5). "Today more than 60 manufacturers supply schools with modern...instant classrooms that can be quickly dissembled-reassembled at another site" (62).

Francis B. McKeag, Assistant Superintendent, Chicago Public Schools, states that a "mix of mobile, semi-permanent, and permanent facilities is essential for urban areas" (62). One thousand two hundred relocatable classrooms are used in Chicago. A reported 35 percent of the school districts are using buildings of this type. Other examples given in the literature include: Nyack, New York - has leased 9 temporary steel structures; North York Borough, Toronto - has set up 127 portables; Philadelphia - has ordered 53 units; and Indianapolis - has leased 30 mobile classrooms. Minneapolis, Buffalo, and Baltimore have also made use of temporary buildings (5,29).

Advantages of leasing relocatable classrooms include elimination of need for double sessions, flexibility in meeting needs of population shifts, avoidance of bond issues and contract bidding, and almost immediate delivery.

Problems with relocatables include: pressure from organized labor, fire and plumbing codes, slightly higher maintenance costs. In addition, temporary buildings appear hard to abandon (80) and leasing agreements may cause legal problems (41).

EXTENDED SCHOOL DAY

A plan of operation, which some districts use to handle burgeoning enrollments by making more extensive use of existing facilities, is that of the extended school day. Generally, under this plan extra periods of instruction are added to the schedule, and staggering of classes and/or lunch periods is involved. Estimates are that a seven-period day will handle 15-20 percent more students than a six-period day, an eight-period day will handle 25-35 percent more students, a nine-period day will handle 35-50 percent more students, and a ten-period day might support 50-100 percent more students (44).

L. J. Brandes refers to three basic features of extended school day plans (12):

> 1. 'Floating' Teachers....on the 'floating' teacher plan, most teachers of a school are assigned to a permanent teacher station for five or six teaching periods. The 'floating' teachers are then scheduled for the various stations when a regularly assigned teacher is not in charge. The number of 'floating' teachers will depend upon the number of periods to be added to the school day and the enrollment that is to be accomodated.
>
> 2. Large and Small Group Classes. Some high school subjects lend themselves better to larger classes than others do....It is generally accepted that a teacher can adequately care for larger classes in typing or general music than in advanced French or Physics....This division (small and larger groups) may be made on the basis of individual school policy on size of enrollment in classes.
>
> 3. ....The plan for the extended school day is to schedule a regular school period as a lunch period for each of two/three equal portions of the school enrollment. Thus, some of the pupils are scheduled for a lunch period while the remainder are utilizing classroom facilities.

The extent to which "floating" teachers, class size, and staggering are utilized would vary with the program and enrollment problems of the

school. South Euclid-Lyndhurst City Schools (Ohio) have reportedly changed from a seven-period day to a nine-period day and are considering extending their day to ten periods (58). This plan allows their students to expand their programs during years when conditions of crowding are lessened.

Advantages and disadvantages of the extended school day plan were given as follows (12):

Advantages

1. Greater utilization can be made of school facilities through increased enrollments, and yet all students have a full schedule of classes.

2. Pupils can engage in outside work or take care of home responsibilities, and yet attend classes all or most of a regular school day. Thus the normal drop-out student is less inclined to leave.

3. All students are present at one time during part of the school day. Thus the spirit of 'togetherness' of the student body is preserved.

4. Pupils have a wider choice of subjects and there is less possibility of subject conflicts.

5. More pupils can share the advantage of the hot lunch program.

6. The teaching load and the length of the working day for teachers are not increased.

7. Added flexibility is provided for extracurricular activities.

Disadvantages

1. ....Faculty members must be able and willing to teach in several subject areas.

2. Faculty members must share classroom facilities.

3. Additional space must be provided as working areas for 'free-period' teachers.

4. The public must come to accept a staggered schedule of classes with both pupils and faculty coming and going at various times of the day.

5. The checking of attendance and control of truancy are likely to be more difficult and require added adminis-

trative supervision.

6. Time must be provided for qualified administrators to prepare and administer the schedule....A review of the plans for extended school schedules indicates that their advantages may outweigh their disadvantages. The greatest difficulty in administering such schedules would be in the transition from the six-day schedule to the extended schedule.

The San Diego City Schools reported that local administrators favored the extended day plan of operation over the double session plan. San Diego High School, Woodrow Wilson Junior High, and Gompers Junior High in that city have used extended day schedules, with few problems encountered (24).

Omaha, Nebraska, and Warwick, Rhode Island, are other examples noted that have used a version of the extended day plan. Omaha was handling an increased enrollment problem, while Warwick was concerned with enrichment of the regular program (49).

At the present time Independent School District 273 at Edina, Minnesota, is considering this alternative. At a meeting of the Edina School Board on March 9, 1970, the administration was instructed to conduct an investigation of staggered, extended-day schedules as a possible means of scheduling high school students during the school years 1970-71 and 1971-72. Faced with an immediate space problem, the Edina School System has authorized extensive remodeling of existing facilities for this summer, as explained elsewhere in this report, to handle an anticipated increase of secondary school enrollment for next fall of 250-270 students.

Edina faculty members, students, and parents have held meetings to discuss the increasing enrollment problem. It was decided that there was not enough information available to assure that a staggered schedule was the best answer for their problem in time to be utilized in September, 1970. Consequently, the Edina School Board has authorized a contract to

be made with TIES to do a computer run of staggered schedules recommended by the faculty.

In addition, committee investigations are being scheduled in such a way as will make possible the employment of a staggered, extended-day schedule in January, 1971, if this proves to be a workable and acceptable program. Mrs. Armi Nelson, Consultant for Communications, stated that criteria are presently being written to determine if this alternative will improve, rather than retard, the educational program.

A joint committee of Edina administration and faculty will investigate further and make determinations concerning the following areas:

1. The role of faculty.
2. Program balance and/or conflicts.
3. Cost.
4. Innovations possible with new space available.
5. Community reaction to a new daily schedule.
6. Transportation.
7. Total district daily time schedule.
8. The role of the school in the total community's daily life - business, commercial, village, etc.

The extended school day combined with modular scheduling would offer unique possibilities for increasing building capacity to handle expanding enrollments. Hopkins Senior High School at Hopkins, Minnesota, provides information upon request on this modular approach to scheduling student instructional time. This avenue of meeting enrollment problems warrants further exploration.

SIX-DAY SCHOOL WEEK

The United States Office of Education conducted a study of nine major school districts across the United States that were attempting to gain greater utilization of their school facilities. These districts included San Francisco, Seattle, Forth Worth, Atlanta, Lincoln (Nebraska), Cleveland Heights (Ohio), Glencoe (Illinois), Butler (Connecticut), and Warwick (Rhode Island). Of these school districts, little attempt was made to offer academic programs on weekends. Generally, the school-sponsored activities on Saturdays and/or Sundays were limited to athletics, dances, rehearsals, and other extra-curricular activities. San Francisco, however, did offer a program on Saturday consisting basically of driver training, music education, industrial arts, and sports. Participation was voluntary. Fort Worth, also, had behind-the-wheel driver training on Saturdays. Lack of student interest forced Warwick to close its school libraries on Saturday, while Cleveland Heights and Butler kept their swimming pools open to students - but no instruction was given (35).

Theoretically, if a school district used six days of the week for its regular five day program, it could reduce enrollment on any given day by 16 2/3 percent. Thus, a school with a total enrollment of 1,200 students would have only 1,000 attending on any given day (55). This reduction would be sufficient to ease overcrowding for some school districts.

Three examples of schools operating on a six-day week were discovered The reasons for each school district adopting a six-day schedule varied, however, and were not basically attempts to handle increasing enrollment. First, the Singapore American School operated on a six-day week in 1968. The main reason for offering classes on Saturday was to gain instructional time so that classes could be released earlier at the end of the year to

allow construction on the buildings to proceed. Attendance was somewhat lower on Saturdays, but most parents, teachers, and students accepted the six-day schedule as being vital for meeting future needs of the school.

Secondly, Norwalk High School in Norwalk, Connecticut, adopted a six-day rotating schedule in 1948 and 1949. Their purpose was mainly to gain extra time for expanding their instructional program to offer extra courses to the students. Eighty-three percent of those questioned approved the six-day schedule (56).

Thirdly, school districts in Ohio tried a six-day school week during World War II. Their main purpose was to lengthen summer vacations and, thus, aid the war effort by releasing students for a longer employment period during the summer months. The problem reported in this case was of lower attendance on the part of high school students, especially, on Saturdays (28).

It appears evident that this plan can increase utilization of existing school facilities and would be accepted by the community under emergency conditions. School districts seem reluctant to try this arrangement because breaking the established pattern of having Saturdays free from academic endeavors creates problems. Although attending classes on Saturdays may be widely accepted in other countries, it has not been in the United States.

DOUBLE SESSIONS

One of the major plans for meeting rapid enrollment increases used widely following World War I is that of the split-shift, half-day, or double session. Many communities throughout the nation have used some variation of this plan to double the capacity of their school plants. Basically, the double session is, in effect, operating two shortened school programs in one day by having two separate student groups attending classes at different times. For example, Edwardsburg, Michigan, operated a double session by having seventh, eighth, and ninth graders attend classes in the afternoon; tenth, eleventh, and twelfth graders attended classes in the morning. Study halls and the high school hot lunch program were eliminated (71).

Joliet, Illinois, operated a modified version of the double session in 1962 and 1963. At Joliet Township High School the school day was shortened. The upper grades carried on a regular program, while half of the ninth graders attended classes from 7:30 A.M. to 12:12 P.M. and the rest attended from 12:17 P.M. to 3:45 P.M. Administrators at Joliet found an increased utilization of their summer program as a result of this plan (38).

Having their junior high school destroyed by fire in 1969, forced the Fairmont Public Schools at Fairmont, Minnesota, to adopt double sessions at the secondary level. In a newsletter sent to parents and interested citizens of Fairmont explaining plans for sharing facilities, it was stated: "We realize that students, teachers, and parents must make adjustments and share inconveniences for several years. We feel confident that together we can meet all challenges if we exercise patience, understanding, and mutual cooperation." Additional comments were made by

Superintendent Lester H. Baumann in correspondence with the Bureau of Field Studies and Surveys of the University of Minnesota, relative to the split shift. Mr. Baumann stated:

> We have settled on a program which seems to best solve the problem with our present facilities and still maintain the Science, Home Economics, Shop, etc. programs for both junior and senior high.
>
> At best the program is far from what we would like it to be. We are moving ahead with a building program as fast as we can, but I see no possibility of getting into the new school until some time in 1972....perhaps at the beginning of the second semester.
>
> The bus schedule is extremely difficult and is costing our district an additional $85,000 this year. It creates quite a burden in homes where there are children in elementary, junior and senior high school. We know of some schools...that have gone into split shift programs because of lack of facilities, but in my opinion we are cheating the kids out of a full program.

Successful operation of schools on a double session basis is possible, given a commitment to the program by the staff and community, and has been considered preferable to a staggered year-round operation by some districts. San Mateo County, California, for example decided that the double sessions would be better for them and cost less money to operate than a year-round program. Also, the Los Angeles City School District concluded that double sessions in the schools would be less harmful to their system financially, organizationally, legally, and educationally than the year-round plan tried and abandoned in Bluffton, Newark, and Aliquippa (57). According to a report from Redwood City, California, the annual capital outlay saving per student while on double sessions would be 40 dollars or 2 1/2 times more per student than if on a 4 quarter plan (15).

The major criticism of double sessions is that students may not be able to complete work normally included in the year's program. Estimates

are that students would lose twenty to thirty percent of their instructional time under a plan of this nature (88, 53, 76). Other evidence, mostly negative, was offered from a study by Dr. Eugene Oliver in What Price Double Sessions? - a National School Boards Association publication (59):

1. There was 24 percent reduction in the time students spent in class. The percent of time loss will obviously vary with the schedule adopted, but a reduction in the amount of time students spend in school is a universal feature of double sessions.
2. Study hall time was greatly reduced.
   Prior to double sessions, more than half of the student body had two daily study periods. With double sessions, less than one third had even one daily study hall.
3. There was a striking reduction in the use of library resources. The circulation of books per student dropped 50 percent. Attendance in the library dropped 38 percent. The use of the library by classes dropped 21 percent.
4. There was a 27 percent decrease in enrollment in music. In arranging schedules, laboratory classes meeting during the short periods had to be assigned double periods. As a result, one of every five students requesting music could not be scheduled in a music class.
5. Students spent less time in school before and after class periods. The less time before and after school was a casualty of tight bus schedules and the elimination of an "activity period" which had followed the last class period....In nine of the twelve comparable schools included in the study, the administrators listed "inability of students to get help from teachers outside of class" as the major disadvantage of double sessions.
6. In general student grades declined slightly during the year of double sessions.
   Students whose grades were above average before double sessions showed the greatest loss, while those whose grades were below average before double session held their own.
7. The net effect of double sessions on Arlington High School's academic program was undesirable, to say the least....

Dr. William C. French states that most people who have worked with double sessions will avoid using them, if at all possible (38). Interestingly, 92 percent of the administrators of schools operating on a split-shift basis who responded to a questionnaire survey indicated the double

session "should be used only as a last resort" (76).

The consensus of opinions about double sessions seems to be that savings on capital investment would be offset by increased expenditures for salaries, maintenance, and transportation, while educational benefits to students would be greatly diminished. If the double session school year were extended to make up for lost instructional time, as some propose (88), the costs would even further offset the savings.

BUSSING

An alternative proposed to provide classroom space for students, which might be utilized on an inter or intra-district basis, especially if redrawing attendance lines or consolidation of districts is not possible, is that of mass transporting of students to schools which do have space available.

Some school districts were noted in the literature as having turned to this strategy for coping with pressures of enrollment. For example, Omaha, Nebraska, and Long Beach, California, both have bussed students to neighboring schools at one time or other (24).

More extensive information was provided about bussing students at St. Louis, Missouri. The St. Louis Schools found bussing about 4,000 students to schools which had room for them cost approximately $62.50 per student annually. They included $250,000 each year in the budget for many years to handle the costs of this plan. Other problems reported in regard to transporting students great distances were associated with removing children from familiar environments, wearing them out with long rides, and shortening their school days (29).

Obviously, transportation costs will increase tremendously under this type of arrangement, and the school will also face tuition charges, if the students are bussed to sympathetic neighboring school districts. This alternative appears to be an emergency measure, at best, since a school district would probably find it more economical, in the long run, to build or rent its own facilities.

At the same time, this route would be open to a school district only if there were facilities in a neighboring area that were not facing similar overcrowding conditions and if persons in the neighboring area were receptive to and cooperative with the entire operation.

ROTATING OR STAGGERED FOUR-QUARTER PLAN

A decidedly controversial alternative to handle burgeoning enrollments is that of the four-quarter plan for year-round school operation. This approach would use the present school plant for approximately 240 days each year (four 60-day quarters), rather than the present 180 days, in an attempt to accommodate more pupils in the same classroom space. To be effective, enrollment should be controlled so that about equal numbers of students are attending classes during each quarter.

Four-quarter plans for educating students date back as early as 1904, in Bluffton, Indiana, and the most recent adoption was in Atlanta, Georgia, in 1968. Numerous cities have investigated the feasibility of operating on a four-quarter plan, but few have actually experimented with one. School districts in Minnesota, such as Bloomington, Moundsview (Irondale), Columbia Heights, Detroit Lakes, and Rosemount, are presently adjusting curriculum to fit the requirements of a quarter, collegiate-like system, so that, theoretically, they will be prepared for moving into a year-round quarter system in the near future to meet community demands for greater utilization of school facilities.

The four-quarter plan used in Aliquippa, Pennsylvania, received the most extensive coverage and attention in the literature. The schools in Aliquippa were forced to operate on a staggered four-quarter plan for about ten years, 1928-1938. No funds were available for erecting new buildings as enrollment jumped from 2,200 to 6,600 in eight years, so the district had to house three times its normal school population in existing facilities (80).

According to H. R. Vanderslice, Superintendent of Schools at Aliquippa during this period, the four-quarter plan met its objectives. He stated (81):

> This all year plan now (1930) in operation in Aliquippa utilizes the school building for 48 weeks in the year. It provides all children with schooling for nine months each year (180 days)...the program adopted has reduced the need for new school buildings. It secures greater utilization of the plant and, at the same time, eliminates the necessity for part-time attendance.

Even though the plan met its objectives and reportedly saved the taxpayers of Aliquippa $285,000 over this extended period (10), including savings of $100,000 in fuel, lights, maintenance, and insurance (14), there was dissatisfaction with some problems of operation. Superintendent Wilson of Aliquippa stated in 1957 (47):

> We will not return to the year-round plan except in an emergency because we feel that the disadvantages of the plan growing out of our experiences with it outweigh the advantages to such an extent that we would not be justified in considering it again.

The disadvantages of staggered quarter plans clearly outlist the advantages, at least as cited by Alf F. Harbo, Research Specialist of the Minnesota State Department of Education. The reader must determine for himself the validity of the "disadvantages" and "advantages", however, as listed below (87):

Disadvantages

1. Theoretically a school should be able to accommodate one third more pupils but because of scheduling problems this would only be possible in very large schools.

2. Pupils having once started on a definite nine months school term and a definite vacation period would find it difficult to change the sequence. (Once on a winter vacation schedule a pupil would always have a winter vacation). To change the sequence would require a six-month vacation or more than nine months of continuous attendance.

3. It would not be possible to keep four groups in the same grade intact in small schools--with the resulting loss of teacher continuity.

4. New courses would have to be established for each quarter programming and graduation would occur four times a year. Most school systems have tried to avoid even semester continuity breaks.

5. The spreading of enrollments over four quarters would make it difficult to maintain classes in certain subjects where enrollments are minimal even under the semester plan, e.g., Latin, trigonometry.

6. The pupils attending the summer quarter (75 percent of pupils) would not be able to participate in the programs of certain community organizations, such as, YMCA, YWCA, Girl Scouts, and Boy Scouts, which are especially active during the summer.

7. Compulsory assignment of pupils would result in parental objections--especially in connection with vacations and other family routines.

8. There would be little to do for pupils who had winter vacations.

9. Some pupils would always be on vacation and these would tempt some pupils to be truant.

10. Class activities would be hampered - one fourth of each class would always be absent (for class plays, etc.).

11. Pupil participation in interschool athletics would be seriously affected - with athletes out of school during the seasons of certain sports.

12. Other extra-curricular activities would find it difficult to function efficiently - music organizations, debating teams, and dramatics.

13. The task of securing teachers would be more difficult.

14. Married teachers with children would find it difficult to teach if their children had different vacation periods.

15. It would be difficult to carry on maintenance repairs, etc.

16. Maintenance costs would be increased because work usually done in the summer would have to be done at night or weekends - with overtime pay.

17. The cost of teaching services, clerical help, and auxiliary school services would be increased.

18. Additional administrative problems would be involved - such as transfers, transient pupils, graduation four times a year, integration of new teachers into the school system, and additional clerical work.

19. Too much time would be wasted at the end of each quarter and the beginning of the next.

20. The cost of pupil transportation would be increased.

Advantages

1. Buildings and equipment would receive more use and this would cause fewer classrooms to be needed at a given time, thus relieving pressing building program.

2. Fewer textbooks and less equipment would be needed at any one time.

3. Students would have a better chance to make up work lost by extended absence.

4. Elementary pupils might be more easily retained (or accelerated) with the unit of time being one quarter rather than one year.

5. Considerable economy in the school budget has been established.

6. There would be a possibility of developing short courses and more electives.

7. There would be an opportunity for teachers to attend regular college sesssions during their off-quarter - at present summer school classes are often too large.

8. Students would be able to work at seasonal industries during their off-quarter, to the advantage of students and certain businesses.

9. Businesses would not be limited to the summer months in planning vacation schedules for employees.

10. If teachers wished to teach all four quarters they would not need to supplement income with non-professional employment in the summer.

11 The reduction in the total number of teachers would reduce the need for employing teachers who are not fully qualified.

12. A child could enter school at the beginning of the quarter nearest his sixth birthday.

The staggered four-quarter plan was also used in Ambridge, Pennsylvania, from 1930 to 1936. The junior high school enrollment in Ambridge increased 155 percent in ten years, while the senior high enrollment increased 429 percent. Immediate relief was needed to handle the increased enrollment. The four-quarter plan met this need, but the plan was abondoned when new facilities could be built (52). Difficulties were mainly with maintenance and administrative problems (85), which some persons feel would be less significant if the plan were used today.

Other cities which have experimented with four-quarter plans, such as Newark and Nashville,have not had economy as a chief objective and consequently have not had a genuine staggered plan to keep enrollments at a definite level (80). This is the case, also, in Atlanta, Georgia, where students can stay out of school for the quarter of their choice (22).

Superintendent John W. Letson of Atlanta has stated, in regard to the voluntary four-quarter plan, that, "It has all kinds of advantages that go beyond that advantage of using our schools 100 percent of the time. The only disadvantage I can see is that it's going to cost more." Last year's summer quarter in Atlanta cost the school district an additional 1.2 million dollars and forced the city to raise its tax rate 3 1/2 mills (79). It must be remembered, however, that Atlanta is not trying to save money or relieve overcrowded conditions, but is trying to expand its program by offering more choices to students (20).

A study in Ohio, designed to show ways that school districts could economize, asserted that a state-wide four-quarter plan could save Ohio school districts $40,000,000. Savings noted would result from a reduction in "capital outlay for new buildings and sites, interest on bonded indebted-

ness, building insurance, plant operations, and salaries". An Ohio superintendent stated that such a plan "would eliminate the need for new buildings in his fast growing district for at least 20 years" (69).

A feasibility study at Fairfield, Connecticut, concluded that a four-quarter plan could save the district $287,000 per year or $33.00 on each $10,000 of assessed property - 3.3 mills (83).

On the other hand, the NEA Research Division reports studies at Atlanta, Los Angeles, Gainesville (Florida), and Cincinnati concluding that costs would increase under four-quarter operation (83). School districts giving serious consideration to this alternative should also obtain a copy of The Flexible System by W. Scott Bauman for an "economic analysis" of the quarterly calendar. Obviously, a school district actually proposing the adoption of a staggered four-quarter plan will need to explore all the ramifications of operating on this basis beforehand and enlist the assistance of specialists in making the transition from the traditional pattern.

45-15 Plan

Valley View Public Schools in Lockport, Illinois, may represent a typical urban school district searching for relief from enrollment pressures. This district is one of the largest elementary school districts found in Illinois (area - 41 1/2 square miles). In 1953, it contained 200 homes and 89 pupils; in 1969, 5,000 homes and 5,000 pupils; and it is estimated for 1979, 20,000 homes and 22,000 pupils. School board members and school administrators, realizing that the bonding power for building new classrooms was at the limit, came up with the 45-15 continuous school year plan as their best logical solution to lack of classrooms.

Under the 45-15 plan "classroom space is automatically increased by 33 percent without additional construction" (200).

The Valley View District Research Office describes the plan as follows (66):

> Briefly, the Valley View 45-15 Continuous School Year Plan is a scheduling system that utilizes the school facilities throughout the whole year.
>
> 1. The pupil population is divided into four equal groups - A,B,C, and D. Children in the same family are always placed in the same time schedule unless the parent requests differently.
>
> 2. A calendar has been made up for the next five years. Legal holidays, Saturdays, and Sundays, a full week at Christmas, a full week at Easter, and at least one week in July have been designated as times when the school is closed.
>
> 3. Each of the four groups of pupils will attend 45 class days and then have a 15 class days vacation.
>
> 4. But, by staggering the starting date of each group, at any one time only three of the groups will be attending classes on any one class day.
>
> 5. Teachers and classrooms are scheduled. Because of the size of the pupil population, electronic data processing facilities will be necessary to the scheduling procedures.
>
> 6. The four groups always stay in the same order of rotation. In a calendar year each group will attend classes 180 days (four sessions of 45 days per session).
>
> 7. This scheduling system will save the Valley View taxpayers the cost of constructing two 30-classroom buildings.

Richard Westerkamp of WBBM-TV, Chicago, stated that the 45-15 plan may not be "a complete answer to the problem of mushrooming school populations in districts which have reached the limit of their bonding powers...but it is an answer" (86).

James Gove, Assistant Superintendent at Valley View, who devised the program, is the first to admit that this plan is no panacea. "But, remember, for each three buildings we construct in the future, we will gain a fourth

under this system" (46).

Presently, savings in building construction costs for this district are estimated at four to six million dollars or the cost of building two 30-room elementary schools. According to Mr. J. Patrick Page of the Valley View Schools, additional information regarding operations of year-round plans of this type can be secured from Compumatics Educational Services, Lockport, Illinois.

"EXTENDED SCHOOL YEAR" ACCELERATION PROGRAMS

Several plans have been devised for extending the school year which would supposedly provide acceleration, economy, and better education all at the same time. The states of Florida, Michigan, California, and New York have been most involved with possibilities for extended school year calendars. Basic plans outlined and under consideration in these states include the following (23):

1. The continuous school-year program of from 203-216 days, with monetary savings to begin after 5 or 6 years;

2. The two-semesters-plus-modified-summer-school program of 180 days plus from 35 to 40 days during the summer, with financial savings to begin after 5 years;

3. The trimester-program of from 204 to 225 days, with savings to begin after the first or the second year;

4. The "quadrimester-program" of from 204 to 220 days, with savings to begin in from 2 to 2-1/4 years; and

5. The extended K-12 program of from 204 to 225 days, with savings to begin in 1-1/3 to s-1/4 years.

Extensive descriptions of these plans are provided in publications of the New York State Department of Education (2, 75).

Many features are common to all of these extended school year plans. These are (23):

1. They are based on an extended school year of 210 or more days.

2. They are designed to make possible acceleration in the schooling cycle, saving one year of schooling in thirteen.

3. In no plan is the traditional summer vacation eliminated, but it is shortened.

4. The attendance periods are not staggered.

5. All of the students are expected to attend each day that school is in session.

6. There is no requirement to lengthen the school day.

Experimentation with extended school year plans has been carried on in various schools, mostly in New York State. For example, Cato-Meridian School District tried a quadrimester school calendar from 1963 to 1967. At Cato-Meridian they were not convinced that school costs could ultimately be reduced, and gains in academic achievement were not significant to warrant a continuation of the program. At Hornell, New York, a modified summer school program was tried. Analyses indicated that regular full-year courses could be offered at a lower cost in the summer and maintenance costs were not greatly increased (83). A study at Syosset, New York, concluded that "The cost of educating students for early graduation under voluntary programs is not economically practical" (23).

When asked how a school district could actually save money by adopting an extended school year plan, Commissioner Allen of New York mentioned the savings resulting from a release of classrooms and teachers by graduating students earlier. He also said pension and transportation costs would be lower (70).

The following budgetary categories have been designated as areas where dollar savings could be realized (64):

> Current expense - Although teachers in the extended school year will receive higher salaries than those in the regular school year, the total cost of teacher salaries and pensions under the extended school year plan will be lower because of the decrease in staff resulting from the reduction in school enrollments.
>
> Transportation costs - Communities may anticipate a reduction in transportation costs with the decreased school enrollment.

Capital outlay and debt service - School construction can be eliminated or minimized with the release of classrooms. Each classroom saved can result in a saving of $45,000 to $50,000 in capital expenditures and related debt service.

Operating cost - Operating costs, including heat, light, power, insurance, maintenance and repairs, salaries of custodians, school administrators, cafeteria workers and other specialists, are less when school construction is curtailed as a result of an extended school year program.

Income from tax rolls - Land and buildings are taken off tax rolls when new schools are built. This loss can be lowered when the release of classrooms decreases the need for new schools. Savings may be considerable in urban areas with high property value.

It has been pointed out, however, that these savings would come only after a sizeable first year increase in costs as much as 10 percent - which may prevent many districts attempting an extended school year plan (70). On the other hand, savings after the transition period may not be as much as anticipated, but educational benefits might induce districts to experiment.

It would appear that one of the suggested plans for extending the school year might prove feasible for a district capable of initiating a compulsory, rather than voluntary, program to accelerate capable students. Actual financial savings would depend on expectations for the educational program, of course, and on the number of years a district would have available to adjust to enrollment pressures. The Florida Educational Research Development Council, however, asserts that "The only feasible all-year school plans yet developed for reducing school costs involve all the pupils attending school for an extended school year and the acceleration of pupils in order to reduce enrollments" (64). Given current school enrollment and financial trends, this approach deserves further exploration.

Conclusion

When all is said and done, there are many alternatives or strategies which school districts might employ to cope with burgeoning enrollments. It is evident, however, that "there are no pre-packaged devices for easy application back home" (63). In other words, each school district must ultimately explore possibilities and select techniques which will best resolve their own unique educational emergency. It is desirable, before any specific approach is implemented, that "they will be measured against high standards of quality for the educational program, the abilities and strengths of the school staff, and - most important - the true needs of the pupils" (12).

At the present time, very little research evidence relating to alternatives is available which measures their effects upon the child, the teacher, and the total school program. It becomes imperative, therefore, for decision-makers to thoroughly investigate implications and consequences of any proposed strategy before decisions are actually reached.

It is also important to alert the community, pupils, and staff to possible emergency conditions and anticipated adjustments to deal with these conditions. Desirable and feasible alternatives often appear threatening, especially when they involve changes in habits, beliefs, attitudes, and established patterns of behavior. In the words of W. C. French, however, "It often is amazing how youngsters, parents, and teachers will, by their cooperative attitude and ability to rise to an emergency, make a seemingly difficult operation work satisfactorily" (12).

Most important of all, when faced with the problem of expanding enrollments and limited financial resources, those responsible for the education of the youth of the area must ask themselves which of the options available best serves their unique needs.

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